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*X*

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant : Levin et al.  
Ser. No. : 10/712,199  
Filing Date : November 13, 2003  
For: Control Knob with Multiple Degrees of Freedom and Force Feedback  
Examiner : Not Yet Assigned  
Art Unit : 2675  
Atty. Docket : IMM054B

Mail Stop: **AMENDMENT**  
Commissioner For Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**INFORMATION DISCLOSURE STATEMENT**

Dear Sir:

Enclosed is a copy of Form 1449, PTO/SB/08A and Supplemental PTO/SB/08A submitted in the parent application. It is respectfully requested that the references listed on the attached forms be expressly considered by the Examiner, made of record in the application, and appear among the "References Cited" on any patent to issue therefrom. Since the IDS submitted in the parent application complied with 37 CFR 1.98, copies of the patents, publications, pending U.S. applications, and other information have not been resubmitted in this continuing application.

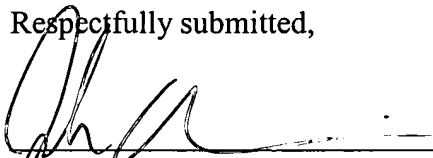
For several of the documents listed in "Other Documents," the date, which is shown on the document, is listed. Applicants make no representation as to the publication date, if any, of the document.

Applicants do not represent or admit that any document listed is prior art or material, and Applicants reserve the right to challenge any assertion that a document listed is prior art or material. Further, Applicants reserve the right to establish patentability over the listed documents.

It is respectfully requested that the references listed on the attached forms be expressly considered by the Examiner, made of record in the application, and appear among the "References Cited" on any patent to issue therefrom.

This Supplemental Information Disclosure Statement is being submitted after the mailing of a first Office Action in this application. Accordingly, enclosed please find a check in the amount of \$180 for the fees required by this action. The Commissioner is also hereby authorized to charge any additional fees under 37 C.F.R. 1.16 or 1.17 which may be required during the entire pendency of this application, or to credit any overpayment, to Deposit Account No. 16-1435. A duplicate of this sheet is attached for that purpose.

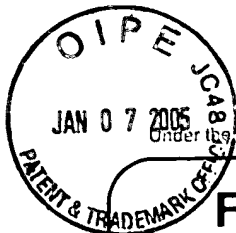
Respectfully submitted,



John C. Alemanni  
Registration No. 47,384

Dated: January 5, 2005

KILPATRICK STOCKTON LLP  
1001 West Fourth Street  
Winston-Salem, North Carolina 27101  
Telephone: (336) 607-7300  
Facsimile: (336) 607-7500



# FEE TRANSMITTAL for FY 2005

Effective 10/01/2004. Patent fees are subject to annual revision

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$ ) 180.00

## Complete if Known

Application Number	10/712,199
Filing Date	November 13, 2003
First Named Inventor	Levin et al.
Examiner Name	Not Yet Assigned
Art Unit	2675
Attorney Docket No.	IMM054B (51851/294780)

## METHOD OF PAYMENT (check all that apply)

☒ Check ☐ Credit card ☐ Money ☐ Other ☐ None  
Order

☒ Deposit Account:

Deposit  
Account  
Number

16-1435

Deposit  
Account  
Name

Kilpatnck Stockton LLP

The Director is authorized to: (check all that apply)

☐ Charge fee(s) indicated below ☒ Credit any overpayments  
☒ Charge any additional fee(s) or any underpayment of fee(s)  
☐ Charge fee(s) indicated below, except for the filing fee  
to the above-identified deposit account.

## FEE CALCULATION

### 1. BASIC FILING FEE

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1001	790	2001	395	Utility filing fee	
1002	350	2002	175	Design filing fee	
1003	550	2003	275	Plant filing fee	
1004	790	2004	395	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	

SUBTOTAL (1)

(\$ ) 0

### 2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

Total Claims  - \*\* =  0 X  Fee from below =  0  
Independent Claims  - \*\* =  0 X  =  0  
Multiple Dependent  X  =  0

Large Entity		Small Entity		Fee Description
Fee Code	Fee (\$)	Fee Code	Fee (\$)	
1202	18	2202	9	Claims in excess of 20
1201	88	2201	44	Independent claims in excess of 3
1203	300	2203	150	Multiple dependent claim, if not paid
1204	88	2204	44	** Reissue independent claims over original patent
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2)

(\$ ) 0

\*\*or number previously paid, if greater; For Reissues, see above

## FEE CALCULATION (continued)

### 3. ADDITIONAL FEES

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for <i>ex parte</i> reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	430	2252	215	Extension for reply within second month	
1253	980	2253	490	Extension for reply within third month	
1254	1,530	2254	765	Extension for reply within fourth month	
1255	2,080	2255	1,040	Extension for reply within fifth month	
1401	340	2401	170	Notice of Appeal	
1402	340	2402	170	Filing a brief in support of an appeal	
1403	300	2403	150	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,370	2453	685	Petition to revive - unintentional	
1501	1,370	2501	685	Utility issue fee (or reissue)	
1502	490	2502	245	Design issue fee	
1503	660	2503	330	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17 (q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	180
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	790	2809	395	Filing a submission after final rejection (37 CFR § 1.129(a))	
1810	790	2810	395	For each additional invention to be examined (37 CFR § 1.129(b))	
1801	790	2801	395	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify) \_\_\_\_\_

\*Reduced by Basic Filing Fee Paid

SUBTOTAL (3)

(\$ ) 180.00

## SUBMITTED BY

## Complete (if applicable)

Name (Print/Type)	John C. Alenchnu	Registration No. (Attorney/Agent)	47,384	Telephone	336-607-7311
Signature		Date	January 5, 2005		

**WARNING:** Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

This collection of information is required by 37 CFR 1.17 and 1.27. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing this form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2

**TRANSMITTAL  
FORM**

(to be used for all correspondence after initial filing)

<b>TRANSMITTAL FORM</b>	Application Number	10/712,199	
	Filing Date	November 13, 2003	
	First Named Inventor	Levin et al.	
	Art Unit	2675	
	Examiner Name	Not Yet Assigned	
Total Number of Pages in This Submission	8	Attorney Docket Number	IMM054B (51851/294780)

**ENCLOSURES (check all that apply)**

<input checked="" type="checkbox"/> Fee Transmittal Form <input checked="" type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment / Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input checked="" type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Reply to Missing Parts/ Incomplete Application <input type="checkbox"/> Reply to Missing Parts under 37 CFR1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) __ <input type="checkbox"/> Landscape Table on CD	<input type="checkbox"/> After Allowance Communication to TC <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) (please identify below): Form 1449; PTO/SB/08A; Supplemental PTO/SB/08A; Return Postcard
<b>Remarks</b>		

**SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT**

Firm	Kilpatrick Stockton LLP		
Signature			
Printed Name	John C. Alemanni		
Date	January 5, 2005	Reg. No.	47,384

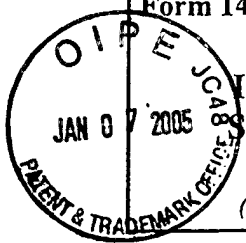
**CERTIFICATE OF TRANSMISSION/MAILING**

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below.

Signature			
Typed or printed name	Kay Farmer	Date	January 5, 2005

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



<b>Form 1449 (Modified)</b>  <b>Information Disclosure Statement By Applicant</b>  <i>(Use Several Sheets if Necessary)</i>	<b>Atty Docket No.:</b> IMM1P054A	<b>Application No.:</b> 09/680,408
	<b>Applicant:</b> Levin et al.	
	<b>Filing Date:</b> 10/2/00	<b>Group:</b> 2675

### U.S. Patent Documents

Examiner Initial		Patent No.	Date	Patentee	Class	Sub-Class	Filing Date
	*	3,919,691	11/11/75	Noll	340	172.5	5/26/71
	*	3,944,798	3/16/76	Eaton	235	151.3	4/18/74
	*	4,050,265	9/27/77	Drennen et al.	64	11	8/3/76
	*	4,125,800	11/14/78	Jones	318	681	9/2/75
	*	4,131,033	12/26/78	Wright et al.	74	553	2/18/77
	*	4,148,014	4/3/79	Burson	340	709	4/6/77
	*	4,477,043	10/16/84	Repperger	244	223	12/15/82
	*	4,560,983	12/24/85	Williams	340	825	9/17/82
	*	4,654,648	3/31/87	Herrington et al.	340	710	12/17/84
	*	4,706,294	11/10/87	Ouchida	381	109	6/10/86
	*	4,712,101	12/8/87	Culver	340	710	12/4/84
	*	4,734,685	3/29/88	Watanabe	340	710	7/18/84
	*	4,782,327	11/1/88	Kley et al.	340	365	1/2/85
	*	4,787,051	11/22/88	Olson	364	518	5/16/86
	*	4,795,296	1/3/89	Jau	414	5	11/17/86
	*	4,798,919	1/17/89	Miessler et al.	178	18	3/11/88
	*	4,800,721	1/31/89	Cemenska et al.	60	393	2/13/87
	*	4,811,608	3/14/89	Hilton	73	862.04	11/6/86
	*	4,823,634	4/25/89	Culver	74	471	11/3/87
	*	4,839,838	6/13/89	LaBiche et al.	364	709.11	3/30/87
	*	4,868,549	9/19/89	Affinito et al.	340	710	5/18/87
	*	4,879,556	11/7/89	Duimel	341	20	10/26/87
	*	4,935,728	6/19/90	Kley	340	709	11/20/87
	*	4,943,866	7/24/90	Barker et al.	358	335	6/16/89
	*	4,961,138	10/20/90	Gorniak	364	200	10/2/89
	*	4,961,267	10/9/90	Herzog	33	503	11/23/88
	*	4,964,004	10/16/90	Barker	360	14.1	6/16/89
	*	4,979,050	12/18/90	Westland et al.	360	14.1	12/2/83
	*	4,983,786	1/8/91	Stevens David et al.	178	18	1/17/90
	*	4,983,901	1/8/91	Lehmer	318	685	4/21/89

<b>Examiner:</b>	<b>Date Considered:</b>
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Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<b>Form 1449 (Modified)</b>  <b>Information Disclosure Statement By Applicant</b>  <i>(Use Several Sheets if Necessary)</i>	<b>Atty Docket No.:</b> IMM1P054A	<b>Application No.:</b> 09/680,408
	<b>Applicant:</b> Levin et al.	
	<b>Filing Date:</b> 10/2/00	<b>Group:</b> 2675

**U.S. Patent Documents**

Examiner Initial		Patent No.	Date	Patentee	Class	Sub- Class	Filing Date
	*	5,007,300	4/16/91	Siva	74	471	1/22/90
	*	5,044,956	9/3/91	Behensky et al.	434	45	1/12/89
	*	5,095,303	03/10/92	Clark et al.	340	710	3/27/90
	*	5,103,404	4/7/92	McIntosh	318	568.22	12/20/89
	*	5,107,080	4/21/92	Rosen	200	6	12/1/89
	*	5,116,051	5/26/92	Moncrief et al.	273	448 B	6/8/90
	*	5,138,154	8/11/92	Hotelling	250	231.12	4/4/90
	*	5,139,261	8/18/92	Openiano	273	148	9/18/91
	*	5,143,505	9/1/92	Burdea et al.	414	5	2/26/91
	*	5,146,566	9/8/92	Hollis, Jr. et al.	395	275	5/29/91
	*	5,181,181	1/19/93	Glynn	364	566	9/27/90
	*	5,184,319	2/2/93	Kramer	364	806	2/2/90
	*	5,185,561	2/9/93	Good et al.	318	432	7/23/91
	*	5,186,629	2/16/93	Rohen	434	114	8/22/91
	*	5,189,355	2/23/93	Larkins et al.	318	685	4/10/92
	*	5,193,963	3/16/93	McAfee et al.	414	5	10/31/90
	*	5,204,600	4/20/93	Kahkoska	318	602	2/6/91
	*	5,220,260	6/15/93	Schuler	318	561	10/24/91
	*	5,223,776	6/29/93	Radke et al.	318	568.1	12/31/90
	*	5,228,356	7/20/93	Chuang	74	471 XY	11/25/91
	*	5,235,868	8/17/93	Culver	74	471	10/2/91
	*	5,254,919	10/19/93	Bridges et al.	318	560	3/22/91
	*	5,280,276	1/18/94	Kwok	345	167	7/10/92
	*	5,296,846	3/22/94	Ledley	345	161	10/5/92
	*	5,296,871	3/22/94	Paley	345	163	7/27/92
	*	5,313,230	5/17/94	Venolia et al.	345	163	7/24/92
	*	5,317,336	5/31/94	Hall	345	164	1/23/92
	*	5,355,148	10/11/94	Anderson	345	166	1/14/93
	*	5,374,942	12/20/94	Gilligan et al.	345	157	8/12/93
	*	5,381,080	1/10/95	Schnell et al.	318	566	2/18/93

<b>Examiner:</b>	<b>Date Considered:</b>
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Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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	<b>Applicant:</b> Levin et al.	
	<b>Filing Date:</b> 10/2/00	<b>Group:</b> 2675

**U.S. Patent Documents**

Examiner Initial		Patent No.	Date	Patentee	Class	Sub- Class	Filing Date
	*	5,389,865	2/14/95	Jacobus et al.	318	568.11	12/2/92
	*	5,396,266	3/7/95	Brimhall	345	161	6/8/93
	*	5,397,323	3/14/95	Taylor et al.	606	130	10/30/92
	*	5,398,044	3/14/95	Hill	345	145	12/7/93
	*	5,405,152	4/11/95	Katanics et al.	273	438	6/8/93
	*	5,414,337	5/9/95	Schuler	318	561	6/11/93
	*	5,429,140	7/4/95	Burdea et al.	128	774	6/4/93
	*	5,436,638	7/25/95	Bolas et al.	345	156	12/17/93
	*	5,436,640	7/25/95	Reeves	345	161	11/30/94
	*	5,451,924	9/19/95	Massimino et al.	340	407.1	1/14/93
	*	5,457,479	10/10/95	Cheng	345	163	6/13/94
	*	5,473,344	12/5/95	Bacon et al.	345	163	1/6/94
	*	5,477,237	12/19/95	Parks	345	156	7/14/94
	*	5,491,477	2/13/96	Clark et al.	341	20	9/13/93
	*	5,512,919	4/30/96	Araki	345	156	3/30/93
	*	5,513,100	4/30/96	Parker et al.	364	167.01	6/10/93
	*	5,530,455	6/25/96	Gillick et al.	345	163	8/10/94
	*	5,541,379	7/30/96	Kim	200	566	1/18/95
	*	5,542,672	8/6/96	Meredith	463	37	3/17/95
	*	5,543,821	8/6/96	Marchis et al.	345	167	7/20/94
	*	5,570,111	10/29/96	Barrett et al.	345	157	10/3/94
	*	5,576,727	11/19/96	Rosenberg et al.	345	179	6/5/95
	*	5,587,937	12/24/96	Massie et al.	364	578	4/25/95
	*	5,589,828	12/31/96	Armstrong	341	20	3/5/92
	*	5,589,854	12/31/96	Tsai	345	161	6/22/95
	*	5,591,082	1/7/97	Jensen et al.	463	38	1/5/95
	*	5,591,924	1/7/97	Hilton	73	862.043	4/23/93
	*	5,623,582	4/22/97	Rosenberg	395	99	7/14/94
	*	5,623,642	4/22/97	Katz et al.	395	500	4/6/94
	*	5,625,576	4/29/97	Massie et al.	364	578	10/1/93

<b>Examiner:</b>	<b>Date Considered:</b>
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**U.S. Patent Documents**

Examiner Initial		Patent No.	Date	Patentee	Class	Sub- Class	Filing Date
	*	5,627,531	5/6/97	Posso et al.	341	22	9/30/94
	*	5,629,594	5/13/97	Jacobus et al.	318	568.11	10/16/95
	*	5,642,469	6/24/97	Hannaford et al.	395	99	11/3/94
	*	5,643,087	7/1/97	Marcus et al.	463	38	7/29/94
	*	5,656,901	8/12/97	Kurita	318	436	4/21/95
	*	5,666,138	9/9/97	Culver	345	161	11/22/94
	*	5,666,473	9/9/97	Wallace	345	420	10/8/92
	*	5,691,747	11/25/97	Amano	345	167	12/19/94
	*	5,691,898	11/25/97	Rosenberg et al.	364	190	3/28/96
	*	5,709,219	1/20/98	Chen et al.	128	782	8/1/96
	*	5,712,725	1/27/98	Faltermeier et al.	359	392	1/11/96
	*	5,714,978	2/3/98	Yamanaka et al.	345	157	12/5/95
	*	5,721,566	2/24/98	Rosenberg et al.	345	161	6/9/95
	*	5,724,068	3/3/98	Sanchez et al.	345	161	9/7/95
	*	5,724,106	03/03/98	Autry et al.	348	734	03/27/96
	*	5,734,373	3/31/98	Rosenberg et al.	345	161	12/1/95
	*	5,736,978	4/7/98	Hasser et al.	345	173	5/26/95
	*	5,742,278	4/21/98	Chen et al.	345	156	11/1/95
	*	5,745,057	4/28/98	Sasaki et al.	341	35	9/24/96
	*	5,749,577	5/12/98	Couch et al.	273	148	5/31/95
	*	5,754,023	5/19/98	Roston et al.	318	561	10/22/96
	*	5,755,577	5/26/98	Gillio	434	262	7/11/96
	*	5,760,764	6/2/98	Martinelli	345	160	12/13/95
	*	5,767,839	6/16/98	Rosenberg	345	161	3/3/95
	*	5,781,172	07/14/98	Engel et al.	345	164	6/16/97
	*	5,787,152	7/28/98	Freadman	379	67	09/12/97
	*	5,790,108	8/4/98	Salcudean et al.	345	184	10/23/92
	*	5,805,140	9/8/98	Rosenberg et al.	345	161	11/17/95
	*	5,808,568	9/15/98	Wu	341	20	3/25/97
	*	5,808,603	9/15/98	Chen	345	157	2/6/97

<b>Examiner:</b>	<b>Date Considered:</b>
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<b>Form 1449 (Modified)</b>  <b>Information Disclosure Statement By Applicant</b>  <i>(Use Several Sheets if Necessary)</i>	<b>Atty Docket No.:</b> IMM1P054A	<b>Application No.:</b> 09/680,408
	<b>Applicant:</b> Levin et al.	
	<b>Filing Date:</b> 10/2/00	<b>Group:</b> 2675

**U.S. Patent Documents**

Examiner Initial		Patent No.	Date	Patentee	Class	Sub- Class	Filing Date
	*	5,823,876	10/20/98	Unbehand	463	37	5/3/96
	*	5,825,308	10/20/98	Rosenberg	341	20	11/26/96
	*	5,831,408	11/3/98	Jacobus et al.	318	568.11	5/12/97
	*	5,841,428	11/24/98	Jaeger et al.	345	184	9/20/96
	*	5,889,506	3/30/99	Lopresti et al.	345	158	10/25/96
	*	5,889,670	3/30/99	Schuler et al.	364	186	1/11/96
	*	5,889,672	3/30/99	Schuler et al.	364	188	6/3/98
	*	5,912,661	6/15/99	Siddiqui	345	166	1/14/97
	*	5,944,151	8/31/99	Jakobs et al.	188	267.1	7/9/96
	*	5,959,613	9/28/99	Rosenberg	345	161	11/13/96
	*	5,990,869	11/23/99	Kubica et al.	345	163	2/19/97
		4,692,756	9/8/87	Clark	340	709	7/5/84
		4,724,715	2/16/88	Culver	74	471R	4/30/86
		4,949,119	8/14/90	Moncrief et al.	364	578	1/12/89
		5,065,145	11/12/91	Purcell	340	706	10/6/89
		5,107,262	4/21/92	Cadoz et al.	341	22	10/12/89
		5,113,179	5/12/92	Scott-Jackson et al.	340	709	3/16/90
		5,237,327	8/17/93	Saitoh et al.	341	176	11/14/91
		5,293,158	3/8/94	Soma	345	161	5/5/92
		5,298,890	3/29/94	Kanamaru et al.	345	157	4/10/91
		5,397,865	3/14/95	Park	178	18	11/15/93
		5,565,887	10/15/96	McCambridge et al.	345	145	06/29/94
		5,596,347	1/21/97	Robertson et al.	345	145	3/31/95
		5,634,794	06/03/97	Hildreth et al.			
		5,696,537	12/9/97	Solhjell	345	164	6/20/91
		5,745,715	04/28/98	Pickover et al.	395	348	09/17/96
		5,757,358	5/26/98	Osga	345	156	6/5/95
		5,771,037	6/23/98	Jackson	345	157	7/24/95
		5,784,052	07/21/98	Keyson			
		5,802,353	09/01/98	Avila et al.			

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	<b>Applicant:</b> Levin et al.	
	<b>Filing Date:</b> 10/2/00	<b>Group:</b> 2675

**U.S. Patent Documents**

Examiner Initial	Patent No.	Date	Patentee	Class	Sub- Class	Filing Date
	5,805,165	09/08/98	Thorne, III et al.	345	348	08/31/95
	5,808,601	09/15/98	Leah et al.	345	145	09/12/95
	5,816,823	10/6/98	Naimark et al.	434	307	10/9/96
	5,821,921	10/13/98	Osborn et al.	345	157	8/9/96
	5,828,363	10/27/98	Yaniger et al.	345	156	8/18/97
	5,831,593	11/3/98	Rutledge	345	156	1/16/96
	5,841,423	11/24/98	Carroll, Jr. et al.	345	168	12/26/95
	5,844,392	12/01/98	Peurach et al.	318	568.17	05/21/97
	5,897,437	4/27/99	Nishiumi et al.	463	47	10/8/96
	5,914,705	6/22/99	Johnson et al.	345	163	2/9/96
	5,956,016	9/21/99	Kuenzner et al.	345	156	3/19/97
	5,973,670	10/26/99	Barber et al.	345	157	12/31/96
	5,973,689	10/26/99	Gallery	345	339	10/29/97
	6,001,014	12/14/99	Ogata et al.	463	37	9/30/97
	6,004,134	12/21/99	Marcus et al.	434	45	5/19/94
	6,028,593	02/22/00	Rosenberg et al.			
	6,061,004	5/9/00	Rosenberg	341	20	5/29/98
	6,078,308	6/20/00	Rosenberg et al.	345	145	6/18/97
	6,088,017	7/11/00	Tremblay et al.	345	156	4/24/98
	6,097,964	8/1/00	Nuovo et al.	455	550	9/4/97
	6,100,874	8/8/00	Schena et al.	345	157	6/24/97
	6,128,006	10/3/00	Rosenberg et al.	345	163	3/26/98
	6,154,201	11/28/00	Levin et al.	345	184	10/26/98
	6,166,723	12/26/00	Schena et al.	345	184	11/7/97
	6,184,868	2/6/01	Shahoian et al.	345	161	9/17/98
	6,211,861	4/3/01	Rosenberg et al.	345	163	12/7/99
	6,219,032	4/17/01	Rosenberg et al.	345	157	12/13/95
	6,225,976	5/1/01	Yates et al.	345	156	10/30/98
	6,232,891	5/15/01	Rosenberg	341	20	9/24/98
	6,243,078	6/5/01	Rosenberg	345	161	2/18/99

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	<b>Applicant:</b> Levin et al.	
	<b>Filing Date:</b> 10/2/00	<b>Group:</b> 2675

**Foreign Patent or Published Foreign Patent Application**

Examiner Initial		Document No.	Publication Date	Country or Patent Office	Class	Sub-class	Translation Yes No	
	*	626634A2	5/11/94	EPO	G06F		X	
	*	875819A1	2/13/98	EPO	G06F		X	
	*	WO95/02233	19.01.95	PCT			X	
	*	WO95/20787	03.08.95	PCT			X	
	*	WO95/20788	03.08.95	PCT			X	
	*	WO95/22591	25.07.96	PCT			X	
	*	WO95/32459	03.11.95	PCT			X	
	*	WO9520788	8/3/95	WPO	G06F		X	
	*	WO9532459	11/30/95	WPO	G06F		X	
	*	WO96/16397	30.05.96	PCT			X	
	*	WO96/42078	27.12.96	PCT			X	
	*	WO97/12357	03.04.97	PCT			X	
	*	WO97/19440	29.05.97	PCT			X	
	*	WO9731333	8/28/97	PCT	G06K		X	
	*	WO9721160	12 June 97	PCT			X	
		0265011	27.04.88	EPO			X	
		WO92/00559	9 Jan 92	PCT			X	
		0607580A1	27.07.94	EPO			X	
		WO00/03319	20.1.2000	PCT			X	
		4400790 A1	18.5.95	Germany			X	
		0489469 A1	10.6.92	EPO			X	
		0663648 A2	19.07.95	EPO			X	

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	<b>Filing Date:</b> 10/2/00	<b>Group:</b> 2675

**Other Documents**

Examiner Initial		Author, Title, Date, Place (e.g. Journal) of Publication
	*	Adachi, Y. et al., "Sensory Evaluation of Virtual Haptic Push-Buttons," Technical Research Center, Suzuki Motor Corp., 1994, pp. 1-7.
	*	Adelstein et al., "Design and Implementation of a Force Reflecting Manipulandum for Manual Control Research," 1992, NASA Ames Research Center, pgs. 1-25.
	*	Akamatsu et al., "Multimodal Mouse: A Mouse-Type Device with Tactile & Force Display," 1994, Presence, Vol. 3, pg. 73-80.
	*	Atkinson et al., "Computing with Feeling, Computing & Graphics," Vol. 2, 1977, pg 97-103.
	*	Batter et al., "Grobe 1: A Computer Display to the Sense of Feel," 1971, IFIP Congress, pg. 759-763.
	*	Brooks Jr., et al., "Project GROPE-Haptic Displays for Scientific Visualization," 1990, Computer Graphics, Vol. 24, pgs. 177-185.
	*	Buttolo et al., "Pen-Based Force Display for Precision Manipulation in Virtual Environments," 1995, IEEE, pgs. 217-224.
	*	Buttolo, Pietro, "Hard Disk Actuators for Mini Teloperation", Proceedings SPIE, Telemanipulator and Telepresence Technologies, Symposium, pp 55-61, Boston, October 31, 1994.
	*	Colgate et al., "Implementation of Stiff Virtual Walls in Force-Reflecting Interfaces," 1993, Dept. of Mech. Engineering, Northwestern University, pgs. 1-7.
	*	Ellis et al., "Design & Evaluation of a High-Performance Prototype Planar Haptic Interface," 1993, ASME, Vol. 49, pg. 55-64.
	*	Fischer et al., "Specification and Design of Input Devices for Teleoperation," 1990, IEEE CH2876-1, pgs. 540-545.
	*	Gotow, J.K. et al., "Perception of Mechanical Properties at the Man-Machine Interface," IEEE CH2503-1/87/0000-0688, 1987, pp. 688-689.
	*	Hannaford et al., "Force Feedback Cursor Control," 1989, NASA Tech Brief, Vol. 13, pg. 1-4.
	*	Hannaford, Blake et al., "Performance Evaluation of a Six-Axis Generalized Force-Reflecting Teleoperator," IEEE May/June 1991, Vol. 21, No. 3, pp. 620-633.
	*	Hasser, Christopher John, "Tactile Feedback for a Force-Reflecting Haptic Display," The School of Engineering, University of Dayton, December 1995, pp. iii-xii & 1-96.
	*	Hayward et al., "Design & Multi-Objective Optimization of a Linkage for a Haptic Interface," 1994, Advances in Robot Kinematics, pg. 359-368.
	*	Hirota et al., "Development of Surface Display," 1993, IEEE 0-7803-1363-1, pgs. 256-262.
	*	Howe et al., "Task Performance with a Dextrous Teleoperated Hand System," 1992, SPIE, Vol. 1833, pgs. 1-9.
	*	Iwata, H., "Artificial Reality with Force-Feedback: Development of Desktop Virtual Space with Compact Master Manipulator," 1990, Computer Graphics, Vol. 24, pgs 165-170.
	*	Iwata, Hiroo, "Pen-based Haptic Virtual Environment," Institute of Engineering Mechanics, University of Tsukuba, Japan, pp. 287-292.

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	<b>Applicant:</b> Levin et al.	
	<b>Filing Date:</b> 10/2/00	<b>Group:</b> 2675

**Other Documents**

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	* Kelley et al., "MagicMouse: Tactile and Kinesthetic Feedback in the Human-Computer Interface using an Electromagnetically Actuated Input/Out Device," 1993, University of Brit. Col., pg. 1-27.
	* Kilpatrick, Paul Jerome, "The Use of a Kinesthetic Supplement in an Interactive Graphics System", The University of North Carolina at Chapel Hill, Ph.D., 1976, Computer Science.
	* Kim, Won S. et al., "A Teleoperation Training Simulator with Visual and Kinesthetic Force Virtual Reality.
	* Kim, Won S. et al., "Graphics Displays for Operator Aid in Telem Manipulation," IEEE 1991, pp. 1059-1067.
	* Kotoku, Tetsuo et al., "Environment Modeling for the Interactive Display (EMID) Used in Telerobotic Systems," IEEE November 3-5, 1991, pp. 99-1004.
	* Kotoku, Tetsuo, "A Predictive Display with Force Feedback and its Application to Remote Manipulation System with Transmission Time Display," IEEE 1992, July 7-10, 1992, pp. 239-246.
	* Millman et al., "Design of a Four Degree-of-Freedom Force-Reflecting Manipulandum with a Specified Force/Torque Workspace," 1991, IEEE CH2969-4, pgs. 1488-1492.
	* Minsky et al., "Feeling & Seeing: Issues in Force Display," 1990, ACM 089791-35 1-5, pgs. 235-270.
	* Munch et al., "Intelligent Control for Haptic Displays," 1996, Eurographics, Vol. 15. No. 3, pg. C-217-C-226.
	* Noll, A. Michael, "Man-Machine Tactile Communication Dissertation," Polytechnic Institute of Brooklyn, June 1971, pp. 1-88.
	* Ouh-young, Ming et al., "Force Display Performs Better than Visual Display in a Simple 6-D Docking Task," IEEE 1989, pp. 1462-1466.
	* Ouh-Young, Ming, "Force Display in Molecular Docking," Chapel Hill 1990, pp. 1-85.
	* Payette et al., "Evaluation of a Force Feedback (Haptic) Computer Pointing Device in Zero Gravity," 10/17/96, ASME Dynamic Systems, Vol. 58, pg. 547-553.
	* Ramstein et al., "The Pantograph: A Large Workspace Haptic Device for a Multimodal Human-Computer Interaction," 1994, Computer-Human Interaction CHI '94, pgs. 1-3.
	* Ramstein, Combining Haptic & Braille Technologies: Design Issues & Pilot Study, 4/11/96, ACM Conf. On Asst. Tech., pg. 37-44
	* Rosenberg et al., "Commercially Viable Force Feedback Controller for Individuals with Neuromotor Disabilities," 1996, Wright Patterson AFB, pgs. 1-33.
	* Rosenberg et al., "The Use of Force Feedback to Enhance Graphical User Interfaces," 1996, Proc. SPIE 2653, pgs. 243-248.
	* Rosenberg, L., "A Force Feedback Programming Primer," Immersion Corp., 1997, pgs. 1-176.
	* Rosenberg, L., "The Use of Virtual Fixtures to Enhance Operator Performance in Time Delayed Teleoperation," 1993, Wright-Patterson AFB, pgs. 1-45.
	* Rosenberg, Louis B. et al., "Perceptual Decomposition of Virtual Haptic Surfaces," IEEE, October 1993.

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	<b>Applicant:</b> Levin et al.	
	<b>Filing Date:</b> 10/2/00	<b>Group:</b> 2675

**Other Documents**

Examiner Initial		Author, Title, Date, Place (e.g. Journal) of Publication
	*	Rosenberg, Louis B., "Perceptual Design of a Virtual Rigid Surface Contact," Center for Design Research Stanford University, Air Force Material Command, April 1993, pp. 1-41.
	*	Rosenberg, Louis B., "The Use of Virtual Fixtures as Perceptual Overlays to Enhance Operator Performance in Remote Environments," Air Force Material Command, September 1992, pp. 1-42.
	*	Rosenberg, Louis B., "Virtual haptic overlays enhance performance in telepresence tasks", Stanford University, Center for Mechanical Engineering, Stanford, CA 94305.
	*	Russo, "The Design and Implementation of a Three Degree-of-Freedom Force Output Joystick," Dept. of Mech. Engineering, 1990, pgs. 8-42.
	*	Schmult et al., "Application Areas for a Force-Feedback Joystick," 1993, Advances in Robotics, Mechatronics, and Haptic Interfaces, Vol. 49, pgs. 47-54.
	*	Su, S. Augustine et al., "The Virtual Panel Architecture: A 3D Gesture Framework," IEEE 1993, pp. 387-393.
	*	Tan, Hong Z et al., "Manual Resolution of Compliance When Work and Force Cues are Minimized," ASME 1993, DSC-Vol. 49, pp. 99-104.
	*	Wiker et al., "Development of Tactile Mice for Blind Access to Computers", 1991, Proceedings of Human Factors Society, pgs. 708-712.
	*	Wiker, Steven F. et al., "Development of Tactile Mice for Blind Access to Computers: Importance of Stimulation Locus, Object Size, and Vibrotactile Display Resolution," Proceedings of the Human Factors Society 35th Annual Meeting 1991, pp. 708-712.
	*	Winey III, "Computer Simulated Visual and Tactile Feedback as an Aid to Manipulator and Vehicle control", Massachusetts Institute of Technology, 1981.
	*	Yokokohji, Yasuyoshi, "What You Can See is What You Can Feel-Development of a Visual/Haptic Interface to Virtual Environment", The Robotics Institutr, Carnegie Mellon University, 1996 IEEE, Proceedings of VRAIS'96.

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U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Substitute Form 1449A/PTO

# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet 1 of 1

## Complete if Known

Application Number 09/680,408  
Filing Date October 2, 2000  
First Named Inventor Michael D. Levin, et al.  
Group Art Unit 2675  
Examiner Name Alecia D. Nelson  
Attorney Docket Number IMM054A

## U.S. PATENT DOCUMENTS

Examiner	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number Kind Code <sup>2</sup> (if known)			

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Country Code <sup>3</sup>	Number <sup>4</sup>	Kind Code <sup>5</sup> (if known)			
	A	JP	H2-185278		7/19/1990	Taito Corporation	
	B	JP	H4-8381		1/13/1992	Epoch Co., et al.	
	C	JP	H5-192449		8/3/1993	Taito Corporation	
	D	JP	H7-24147		1/27/1995	Sega Corporation	

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## OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	
	E	"Taking a Joystick Ride", Computer Currents, Tim Scannell, Nov. 1994, Boston Edition, Vol. 9 No. 11	
	F	"Coaxial Control Shaker Part No. C-25502," Safe Flight Instrument Corporation, 26 pages, July 1, 1967; Revised January 28, 2002.	

Examiner  
Signature

Date  
Considered

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**SUPPLEMENTAL INFORMATION  
DISCLOSURE  
STATEMENT BY APPLICANT**

(use as many sheets as necessary)

Sheet 1 of 5

**Complete if Known**

Application Number	09/680,408
Filing Date	October 2, 2000
First Named Inventor	Michael D. LEVIN et al.
Group Art Unit	2675
Examiner Name	Alecia D. Nelson
Attorney Docket Number	IMM054A

**U.S. PATENT DOCUMENTS**

Examiner	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number Kind Code <sup>2</sup> (if known)			
	AA	3,220,121	11/30/1965	Cutler	
	AB	3,517,446	6/30/1970	Corlyon et al.	
	AC	3,903,614	9/9/1975	Diamond et al.	
	AD	4,236,325	10/2/1980	Hall et al.	
	AE	4,513,235	4/23/1985	Acklam et al.	
	AF	4,599,070	7/8/1986	Hladky et al.	
	AG	4,708,656	11/24/1987	De Vries et al.	
	AH	4,713,007	12/15/1987	Alban	
	AI	4,891,764	1/2/1990	McIntosh	
	AJ	5,019,761	5/28/1991	Kraft	
	AK	5,022,407	6/11/1991	Horch et al.	
	AL	5,240,417	8/31/1993	Smithson et al.	
	AM	5,271,290	12/21/1993	Fischer	
	AN	5,275,174	1/4/1994	Cook	
	AO	5,785,630	7/28/1998	Bobick et al.	
	AP	3,157,853	11/17/1964	Hirsch	
	AQ	3,497,668	2/24/1970	Hirsch	
	AR	3,902,687	6/25/1973	Hightower	
	AS	4,160,508	7/10/1979	Salsbury	
	AT	4,581,491	4/8/1986	Boothroyd	
	AU	4,930,770	6/5/1990	Baker	
	AV	4,934,694	6/19/1990	McIntosh	
	AW	5,035,242	7/30/1991	Franklin	
	AX	5,038,089	8/6/1991	Szakaly	
	AY	5,078,152	1/7/1992	Bond	
	AZ	5,299,810	4/5/1994	Pierce	
	BA	5,309,140	5/3/1994	Everett	
	BB	5,334,027	8/2/1994	Wherlock	
	BC	5,547,382	8/20/1996	Yamasaki	
	BD	5,212,473	5/18/1993	Louis	
	BE	5,466,213	11/14/1995	Hogan	
	BF	5,766,016	6/16/1998	Sinclair	
	BG	5,186,685	2/16/1993	Mangseth et al.	
	BH	6,422,941	7/23/2002	Thomer et al.	
		6,111,577	8/29/2000	Zilles et al.	

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		Application Number	09/680,408
		Filing Date	October 2, 2000
		First Named Inventor	Michael D. LEVIN et al.
		Group Art Unit	2675
		Examiner Name	Alecia D. Nelson
Sheet 2 of 5	Attorney Docket Number	IMM054A	

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Country Code <sup>2</sup>	Number <sup>4</sup>	Kind Code <sup>5</sup> (if known)			
	BI	EP	EP0349086		1/31/1990	Visser	

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	BJ	BAIGRIE, "Electric Control Loading - A Low Cost, High Performance Alternative," Proceedings, pp. 247-254, November 6-8, 1990.	
	BK	IWATA, "Pen-based Haptic Virtual Environment," 0-7803-1363-1/93 IEEE, pp 287-292, 1993.	
	BL	RUSO, "The Design and Implementation of a Three Degree of Freedom Force Output Joystick," MIT Libraries Archives 08/14/1990, pp. 1-131, May 1990.	
	BM	BROOKS et al., "Hand Controllers for Teleoperation - A State-of-the-Art Technology Survey and Evaluation," JPL Publication 85-11; NASA-CR-175890; N85-28559, pp. 1-84, 03/1/1985.	
	BN	JONES et al., "A perceptual analysis of stiffness," ISSN 0014-4819 Springer International (Springer-Verlag); Experimental Brain Research, Vol. 79, No. 1, pp. 150-156, 1990.	
	BO	BURDEA et al., "Distributed Virtual Force Feedback, Lecture Notes for Workshop on Force Display in Virtual Environments and its Application to Robotic Teleoperation," 1993 IEEE International Conference on Robotics and Automation, pp. 25-44, 05/02/1993.	
	BP	SNOW et al., "Model-X Force-Reflecting-Hand-Controller," NT Control no. MPO-17851; JPL Case No. 5348, pp. 1-4, 06/15/1989.	
	BQ	OUH-YOUNG, "Force Display in Molecular Docking," Order No. 9034744, p. 1-369, 1990.	
	BR	TADROS, "Control System Design for a Three Degree of Freedom Virtual Environment Simulator Using Motor/Brake Pair Actuators, MIT Archive© Massachusetts Institute of Technology, pp. 1-88, February 1990.	
	BS	CALDWELL et al., "Enhanced Tactile Feedback (Tele-Traction) Using a Multi-Functional Sensory System," 1050-4729/93, pp. 955-960, 1993.	
	BT	ADELSTEIN, "Design and Implementation of a Force Reflecting Manipulandum for Manual Control research," DSC-Vol. 42, Advances in Robotics, Edited by H. Kazerooni, pp. 1-12, 1992.	
	BU	GOTOW et al., "Controlled Impedance Test Apparatus for Studying Human Interpretation of Kinesthetic Feedback," WA11-11:00, pp. 332-337	
	BV	STANLEY et al., "Computer Simulation of Interacting Dynamic Mechanical Systems Using Distributed Memory Parallel Processors," DSV-Vol. 42, Advances in Robotics, pp. 55-61, ASME 1992.	
	BW	RUSO, "Controlling Dissipative Magnetic Particle Brakes in Force Reflective Devices," DSC-Vol. 42, Advances in Robotics, pp. 63-70, ASME 1992.	

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	BX	KONTARINIS et al., "Display of High-Frequency Tactile Information to Teleoperators," Telemanipulator Technology and Space Telerobotics, Won S. Kim, Editor, Proc. SPIE Vol. 2057, pp. 40-50, Sep. 7-9, 1993.
	BY	PATRICK et al., "Design and Testing of A Non-reactive, Fingertip, Tactile Display for Interaction with Remote Environments," Cooperative Intelligent Robotics in Space, Rui J. deFigueiredo et al., Editor, Proc. SPIE Vol. 1387, pp. 215-222, 1990.
	BZ	ADELSTEIN, "A Virtual Environment System For The Study of Human Arm Tremor," Ph.D. Dissertation, Dept. of Mechanical Engineering, MIT, June 1989.
	CA	BEJCZY, "Sensors, Controls, and Man-Machine Interface for Advanced Teleoperation," Science, Vol. 208, No. 4450, pp. 1327-1335, 1980.
	CB	BEJCZY, "Generalization of Bilateral Force-Reflecting Control of Manipulators," Proceedings Of Fourth CISM-IFTOMM, Sep. 8-12, 1981.
	CC	MCAFFEE, "Teleoperator Subsystem/Telerobot Demonstrator: Force Reflecting Hand Controller Equipment Manual," JPL D-5172, pp. 1-50, A1-A36, B1-B5, C1-C36, January 1988.
	CD	MINSKY, "Computational Haptics: The Sandpaper System for Synthesizing Textue for a Force-Feedback Display," Ph.D. Dissertation, MIT, June 1995.
	CE	JACOBSEN et al., "High Performance, Dextrous Telerobotic Manipulator With Force Reflection," Intervention/ROV '91 Conference & Exposition, Hollywood, Florida, May 21-23, 1991.
	CF	SHIMOGA, "Finger Force and Touch Feedback Issues in Dexterous Telemanipulation," Proceedings of Fourth Annual Conference on Intelligent Robotic Systems for Space Exploration, Rensselaer Polytechnic Institute, Sep. 30 - Oct. 1, 1992.
	CG	IBM Technical Disclosure Bulletin, "Mouse Ball-Actuating Device With Force and Tactile Feedback," Vol. 32, No. 9B, February 1990.
	CH	TERRY et al., "Tactile Feedback In A Computer Mouse," Proceedings of Fourteenth Annual Northeast Bioengineering Conference, University of New Hampshire, March 10-11, 1988.
	CI	HOWE, "A Force-Reflecting Teleoperated Hand System for the Study of Tactile Sensing in Precision Manipulation," Proceedings of the 1992 IEEE International Conference on Robotics and Automation, Nice, France, May 1992.
	CJ	EBERHARDT et al., "OMAR - A Haptic display for speech perception by deaf and def-blind individuals," IEEE Virtual Reality Annual International Symposium, Seattle, WA, Sep. 18-22, 1993.
	CK	RABINOWITZ et al., "Multidimensional tactile displays: Identification of vibratory intensity, frequency, and contractor area," Journal of The Accoustical Society of America, Vol. 82, No. 4, October 1987.

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	CL	BEJCZY et al., "Kinesthetic Coupling Between Operator and Remote Manipulator," International Computer Technology Conference, The American Society of Mechanical Engineers, San Francisco, CA, August 12-15, 1980.	
	CM	BEJCZY et al., "A Laboratory Breadboard System For Dual-Arm Teleoperation," SOAR '89 Workshop, JSC, Houston, TX, July 25-27, 1989.	
	CN	OUH-YOUNG, "A Low-Cost Force Feedback Joystick and Its Use in PC Video Games," IEEE Transactions on Consumer Electronics, Vol. 41, No. 3, August 1995.	
	CO	MARCUS, "Touch Feedback in Surgery," Proceedings of Virtual Reality and Medicine The Cutting Edge, Sep. 8-11, 1994.	
	CP	BEJCZY, et al., "Universal Computer Control System (UCCS) For Space Telerobots," CH2413-3/87/0000/0318501.00 1987 IEEE, 1987.	
	CQ	AUKSTAKALNIS et al., "Silicon Mirage: The Art and Science of Virtual Reality," ISBN 0-938151-82-7, pp. 129-180, 1992.	
	CR	EBERHARDT et al., "Including Dynamic Haptic Perception by The Hand: System Description and Some Results," DSC-Vol. 55-1, Dynamic Systems and Control: Volume 1, ASME 1994.	
	CS	GOBEL et al., "Tactile Feedback Applied to Computer Mice," International Journal of Human-Computer Interaction, Vol. 7, No. 1, pp. 1-24, 1995.	
	CT	PIMENTEL et al., "Virtual Reality: through the new looking glass," 2 <sup>nd</sup> Edition; McGraw-Hill, ISBN 0-07-050167-X, pp. 41-202, 1994.	
	CU	"Cyberman Technical Specification," Logitech Cyberman SWIFT Supplement, 4/5/1994.	
	CV	OUHYOUNG et al., "The Development of A Low-Cost Force Feedback Joystick and Its Use in the Virtual Reality Environment," Proceedings of the Third Pacific Conference on Computer Graphics and Applications, Pacific Graphics '95, Seoul, Korea, 21-24 August 1995.	
	CW	KACZMAREK et al., "Tactile Displays," Virtual Environment Technologies.	

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